

## ABSTRACT

An electron beam source comprises a source surface illuminated with a photon beam of adjustable intensity. The photon beam assists emission of electrons from the source surface due to a photo effect. An electric extraction field further assists in electron emission. Further, a heater is provided for further assisting in electron emission by a thermionic effect. An electron beam current is measured, and the intensity of the photon beam is adjusted based on the measured electron beam current.